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DEPARTMENT OF COMMERCE
BUREAU OF STANDARDS
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Letter
Circular
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Information Section
Bureau of Standards, Washington

ABRIDGED VOLUME CORRECTION TABLE FOR PETROLEUM OILS

(For complete table, see Table 2, Circular 154)

The table contained herein has been prepared to meet a demand from the oil industry for a short and convenient table for reducing oil volumes to the basis of 60° F. when extreme accuracy is not required. It is not intended to replace the more complete and accurate volume correction table contained in Circular No. 154, but rather to supplement it and especially to replace the various abridged tables and approximate correction factors heretofore employed in the oil industry.

In case of disagreement between buyer and seller, or whenever high accuracy is essential the complete table contained in Circular No. 154 should be used, especially if large volumes or wide temperature ranges are involved.

The abridged table is based on the same data as Table 2, Circular No. 154. The groups, coefficients of expansion, degrees A.P.I., and gravity range of the abridged table follow:

Group Number	Coefficient of Expansion at 60°F.	Corresponding Degrees A.P.I.	Range of group (degrees A.P.I. at 60°F)
I	0.0004	22.5	10 to 34.9
II	.0005	44.5	35 to 50.9
III	.0006	57.1	51 to 63.9
IV	.0007	71.1	64 to 78.9
V	.0008	85.3	79 to 88.9
VI	.00085	91.3	89 and higher

This table shows the volume occupied at 60° F. by a quantity of oil occupying unit volume at the indicated temperatures. For example, if at 60° F. the A.P.I. gravity of the oil is 28, (Group I), one gallon of this oil measured at 120° F. will have a volume of 0.9762 gallons at 60° F. The values given in the table are in the form of "multipliers"; that is, the volume of oil at the indicated temperature and degrees A.P.I. for each group, multiplied by the corresponding factor in the table, equals the volume at 60° F. For example, if the A.P.I. gravity of an oil at 60° F. equals 28 (Group I) and the volume at 120° F. equals 6000 gallons, then the volume at 60° F. equals 6000 × 0.9762, or 5857.2 gallons.

Observed temperature in ° F.	Group I	II	III	IV	V	VI
	Degrees A. P. I. at 60° F.					
	10.0 to 34.9	35.0 to 50.9	51.0 to 63.9	64.0 to 78.9	79.0 to 88.9	89.0 and higher
	Volume at 60° F. Occupied by Unit Volume at Indicated Temperature.					
0	1.0243	1.0299	1.0357	1.0416	1.0472	1.0503
1	1.0239	1.0294	1.0351	1.0409	1.0464	1.0495
2	1.0235	1.0289	1.0345	1.0402	1.0457	1.0486
3	1.0230	1.0284	1.0340	1.0395	1.0449	1.0478
4	1.0226	1.0279	1.0334	1.0388	1.0442	1.0469
5	1.0222	1.0274	1.0328	1.0381	1.0434	1.0461
6	1.0218	1.0269	1.0322	1.0374	1.0426	1.0453
7	1.0214	1.0264	1.0316	1.0367	1.0418	1.0444
8	1.0210	1.0259	1.0310	1.0361	1.0411	1.0435
9	1.0206	1.0254	1.0304	1.0354	1.0403	1.0427
10	1.0202	1.0249	1.0298	1.0347	1.0395	1.0419
11	1.0198	1.0244	1.0292	1.0340	1.0387	1.0411
12	1.0194	1.0239	1.0286	1.0333	1.0379	1.0403
13	1.0189	1.0234	1.0280	1.0326	1.0372	1.0394
14	1.0185	1.0229	1.0274	1.0319	1.0364	1.0386
15	1.0181	1.0224	1.0268	1.0312	1.0356	1.0378
16	1.0177	1.0219	1.0262	1.0305	1.0348	1.0370
17	1.0173	1.0214	1.0256	1.0298	1.0340	1.0361
18	1.0169	1.0209	1.0250	1.0291	1.0333	1.0353
19	1.0165	1.0204	1.0244	1.0284	1.0325	1.0344
20	1.0161	1.0199	1.0238	1.0277	1.0317	1.0336
21	1.0157	1.0194	1.0232	1.0270	1.0309	1.0328
22	1.0153	1.0189	1.0226	1.0263	1.0301	1.0320
23	1.0148	1.0185	1.0220	1.0257	1.0294	1.0311
24	1.0144	1.0180	1.0214	1.0250	1.0286	1.0303
25	1.0140	1.0175	1.0208	1.0243	1.0278	1.0295
26	1.0136	1.0170	1.0202	1.0236	1.0270	1.0287
27	1.0132	1.0165	1.0196	1.0229	1.0262	1.0278
28	1.0128	1.0160	1.0191	1.0223	1.0254	1.0270
29	1.0124	1.0155	1.0185	1.0216	1.0246	1.0261
30	1.0120	1.0150	1.0179	1.0209	1.0238	1.0253
31	1.0116	1.0145	1.0173	1.0202	1.0230	1.0245
32	1.0112	1.0140	1.0167	1.0195	1.0222	1.0237
33	1.0108	1.0135	1.0161	1.0188	1.0215	1.0228
34	1.0104	1.0130	1.0155	1.0181	1.0207	1.0220
35	1.0100	1.0125	1.0149	1.0174	1.0199	1.0212
36	1.0096	1.0120	1.0143	1.0167	1.0191	1.0204
37	1.0092	1.0115	1.0137	1.0160	1.0183	1.0195
38	1.0088	1.0109	1.0131	1.0153	1.0175	1.0187
39	1.0084	1.0104	1.0125	1.0146	1.0167	1.0178
40	1.0080	1.0099	1.0119	1.0139	1.0159	1.0170
41	1.0076	1.0094	1.0113	1.0132	1.0151	1.0161
42	1.0072	1.0089	1.0107	1.0125	1.0143	1.0153
43	1.0068	1.0084	1.0102	1.0119	1.0135	1.0144
44	1.0064	1.0079	1.0096	1.0112	1.0127	1.0136
45	1.0060	1.0074	1.0090	1.0105	1.0119	1.0127
46	1.0056	1.0069	1.0084	1.0098	1.0111	1.0118
47	1.0052	1.0064	1.0078	1.0091	1.0103	1.0110
48	1.0048	1.0059	1.0071	1.0083	1.0095	1.0101
49	1.0044	1.0054	1.0065	1.0076	1.0087	1.0093
50	1.0040	1.0049	1.0059	1.0069	1.0079	1.0084
51	1.0036	1.0044	1.0053	1.0062	1.0071	1.0076
52	1.0032	1.0039	1.0047	1.0055	1.0063	1.0067
53	1.0028	1.0035	1.0042	1.0049	1.0056	1.0059
54	1.0024	1.0030	1.0036	1.0042	1.0048	1.0050
55	1.0020	1.0025	1.0030	1.0035	1.0040	1.0042
56	1.0016	1.0020	1.0024	1.0028	1.0032	1.0034
57	1.0012	1.0015	1.0018	1.0021	1.0024	1.0025
58	1.0008	1.0010	1.0012	1.0014	1.0016	1.0017
59	1.0004	1.0005	1.0006	1.0007	1.0008	1.0008
60	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
61	.9996	.9995	.9994	.9993	.9992	.9992
62	.9992	.9990	.9988	.9986	.9984	.9983
63	.9988	.9985	.9983	.9979	.9977	.9975
64	.9984	.9980	.9977	.9972	.9969	9966

Observed temperature in ° F.	Group I	II	III	IV	V	VI	Observed temperature in ° F.	I	II
	Degrees A.P.I. at 60° F.							Degrees A.P.I. at 60°	
	10.0 to 34.9	35.0 to 50.9	51.0 to 63.9	64.0 to 78.9	79.0 to 88.9	89.0 and higher		10.0 to 34.9	35.0 to 50.9
	Volume at 60° F. Occupied by Unit Volume at Indicated Temperature.								
65	0.9980	0.9975	0.9971	0.9965	0.9961	0.9958	130	0.9723	0.9650
66	.9976	.9970	.9965	.9958	.9953	.9949	131	.9719	.9645
67	.9972	.9965	.9958	.9951	.9945	.9941	132	.9715	.9640
68	.9968	.9961	.9952	.9944	.9936	.9932	133	.9712	.9635
69	.9964	.9956	.9946	.9937	.9928	.9924	134	.9708	.9630
70	.9960	.9951	.9940	.9930	.9920	.9915	135	.9704	.9625
71	.9956	.9946	.9934	.9923	.9912	.9906	136	.9700	.9620
72	.9952	.9941	.9928	.9916	.9904	.9897	137	.9696	.9615
73	.9948	.9935	.9922	.9909	.9896	.9889	138	.9693	.9610
74	.9944	.9930	.9916	.9902	.9888	.9880	139	.9689	.9605
75	.9940	.9925	.9910	.9895	.9880	.9872	140	.9685	.9600
76	.9936	.9920	.9904	.9888	.9872	.9863	141	.9681	.9595
77	.9932	.9915	.9898	.9881	.9864	.9855	142	.9677	.9590
78	.9929	.9910	.9893	.9874	.9855	.9846	143	.9674	.9585
79	.9925	.9905	.9887	.9867	.9847	.9838	144	.9670	.9580
80	.9921	.9900	.9881	.9860	.9839	.9829	145	.9666	.9575
81	.9917	.9895	.9875	.9853	.9831	.9820	146	.9662	.9570
82	.9913	.9890	.9869	.9846	.9823	.9812	147	.9658	.9565
83	.9909	.9885	.9862	.9839	.9815	.9803	148	.9654	.9560
84	.9905	.9880	.9856	.9832	.9807	.9795	149	.9650	.9555
85	.9901	.9875	.9850	.9825	.9799	.9786	150	.9646	.9550
86	.9897	.9870	.9844	.9818	.9791	.9778	151	.9642	
87	.9893	.9865	.9838	.9811	.9783	.9769	152	.9638	
88	.9889	.9860	.9832	.9804	.9775	.9761	153	.9635	
89	.9885	.9855	.9826	.9797	.9767	.9752	154	.9631	
90	.9881	.9850	.9820	.9790	.9759	.9744	155	.9627	
91	.9877	.9845	.9814				156	.9623	
92	.9873	.9840	.9808				157	.9619	
93	.9869	.9835	.9803				158	.9615	
94	.9865	.9830	.9797				159	.9611	
95	.9861	.9825	.9791				160	.9607	
96	.9857	.9820	.9785				151	.9603	
97	.9853	.9815	.9779				162	.9600	
98	.9849	.9811	.9772				163	.9596	
99	.9845	.9806	.9766				164	.9592	
100	.9841	.9801	.9760				165	.9588	
101	.9837	.9796	.9754				166	.9584	
102	.9833	.9791	.9748				167	.9580	
103	.9830	.9785	.9741				168	.9576	
104	.9826	.9780	.9735				169	.9572	
105	.9822	.9775	.9729				170	.9568	
106	.9818	.9770	.9723				171	.9564	
107	.9814	.9765	.9717				172	.9560	
108	.9810	.9760	.9711				173	.9557	
109	.9806	.9755	.9705				174	.9553	
110	.9802	.9750	.9699				175	.9549	
111	.9798	.9745	.9693				176	.9545	
112	.9794	.9740	.9687				177	.9541	
113	.9790	.9735	.9681				178	.9538	
114	.9786	.9730	.9675				179	.9534	
115	.9782	.9725	.9669				180	.9530	
116	.9778	.9720	.9663				181	.9526	
117	.9774	.9715	.9657				182	.9522	
118	.9770	.9710	.9651				183	.9519	
119	.9766	.9705	.9645				184	.9515	
120	.9762	.9700	.9639				185	.9511	
121	.9758	.9695	.9633				186	.9507	
122	.9754	.9690	.9627				187	.9503	
123	.9751	.9685	.9621				188	.9500	
124	.9747	.9680	.9615				189	.9496	
125	.9743	.9675	.9609				190	.9492	
126	.9739	.9670					191	.9488	
127	.9735	.9665					192	.9485	
128	.9731	.9660					193	.9481	
129	.9727	.9655					194	.9478	
							195	.9474	